

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

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PCT - PATENT

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To:

TBK-Patent  
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WRITTEN OPINION OF THE  
INTERNATIONAL PRELIMINARY  
EXAMINING AUTHORITY

(PCT Rule 66)

Date of mailing  
(day/month/year)

16-02-2004

Applicant's or agent's file reference

WO 34762

REPLY DUE

within 60 days from  
the above date of mailing

International application No.

PCT/IB 2002/002492

International filing date (day/month/year)

28-06-2002

Priority date (day/month/year)

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International Patent Classification (IPC) or both national classification and IPC

H04L 12/56

Applicant

Nokia Corporation et al

1. ☐ The written opinion established by the International Searching Authority:  
☐ is ☐ is not  
considered to be a written opinion of the International Preliminary Examining Authority.
2. This first (first, etc.) opinion contains indications relating to the following items:
  - ☒ Box No. I Basis of the opinion
  - ☐ Box No. II Priority
  - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - ☐ Box No. IV Lack of unity of invention
  - ☒ Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - ☒ Box No. VI Certain documents cited
  - ☐ Box No. VII Certain defects in the international application
  - ☐ Box No. VIII Certain observations on the international application
3. The applicant is hereby invited to reply to this opinion.

**When?** See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e).

**How?** By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

**Also** For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6. For an additional opportunity to submit amendments, see Rule 66.4.

**If no reply is filed,** the international preliminary examination report will be established on the basis of this opinion.
4. The final date by which the international preliminary report on patentability (Chapter II of the PCT) must be established according to Rule 69.2 is: 28-09-2004

Name and mailing address of the IPEA/SE

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Form PCT/IPEA/408 (cover sheet) (January 2004)

16-4-2004 ✓ 11/16-3

W **ritten Opinion of the**  
**INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY**

International application No.

PCT/IB 2002/002492

**Box No. I**      **Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

- ☐ This opinion is based on a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this opinion has been established on the basis of *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed.")*:

- ☒ the international application as originally filed/furnished
- ☐ the description:
- pages \_\_\_\_\_ as originally filed/furnished
- pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the claims:
- pages \_\_\_\_\_ as originally filed/furnished
- pages \_\_\_\_\_ as amended (together with any statement) under Article 19
- pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ the drawings:
- pages \_\_\_\_\_ as originally filed/furnished
- pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

W RITTEN OPINION OF THE  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

International application No.

PCT/IB 2002/002492

Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>16, 17</u>
	Claims	
Inventive step (IS)	Claims	<u>1-25</u>
	Claims	
Industrial applicability (IA)	Claims	
	Claims	

2. Citations and explanations:

Cited documents:

D1: US, A, 6272522  
D2: EP, A, 0782072  
D3: US, A, 2001043585  
D4: US, A, 5655120  
D5: US, A, 2002064160  
D6: US, A, 5978844  
D7: US, A, 4748558

The object of the invention is to make the load balancing more efficient by introducing a load balancer.

D1 relates to a load balancing system that stores the load state of the different processors. The shared memory 34 contains a program that executes in the background to retrieve the information stored in the routing table 62 and maintains the status of the routing table 62 as changes are made to the configuration. This feature is considered to be an equal feature as the feature of containing information about the connection state (abstract).

D2 discloses a system that obtains information about the load and the connection state from servers.

D3 discloses a system where a ZNK sends a packet to a node based on the link and the load of the node.

D4 relates to a system that distributes the load among processors based the load of the processors.

.../...

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.  
Continuation of: BOX V

D5 discloses a method that after the call connection request is received the loads supported by a plurality of packet processors are compared. The call connection is then assigned to the packet processor having a load that is no larger than the load supported by any other of the plurality of packet processors.

D6 relates to a system where forwarding means reports the load of the processors to adjusting means. Based on the load the forwarding processor with least load is selected to process a packet.

D7 relates to a system that contains a global processor that examines the load status indicator contained therein which shows the load status of each of the system processors; selects the processor having the lightest load status; and issues an order to treat the service demand from the requesting terminal to the selected processor having the lightest load.

D1 is considered to be the closest state of the art.

The feature of containing information about the load state of the processors and selecting processor for a packet based on this information is known from what D1 discloses. Even though the connection state is not mentioned per se in D1, the routing table contains information about the connection and from this information the invention according to claim 1 is considered to be an obvious detail that does not require any inventive activity for a person skilled in the art.

From what is stated above the invention according to claim 13 is considered obvious as well for a person skilled in the art.

The invention according to claims 16 and 17 is not novel from what D1 discloses.

The invention according to claims 2-5,8,9,12,14,15,18,19 and 23-25 merely states details known or obvious to a person skilled in the art and the details require no inventive activity to implement in a system according to D1. The invention according to claims 2-5,8,9,12,14,15,18,19 and 23-25 lacks an inventive step.

.../...

**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.

Continuation of: BOX V

The invention according to claims 6,7,20 and 21 differs from what D1 states in the matter of maintaining the service profile for the processing means. But in D1 it is mentioned that a service request to a processor that does not support the service is discarded or sent back to its origin. It would be obvious for a person skilled in the art to maintain a table of service profiles in the memory of the system of D1, from what is disclosed in D1. Hence, the invention according to claims 6,7,20 and 21 does not involve an inventive step.

The invention according to claims 10,11 and 22 differs from what D1 discloses in the matter of inserting information into a packet that has been processed.

The effect of this is that information is sent without requiring extra packets to be sent.

The problem underlying the invention according the claims 10,11 and 22 is to inform the state of the connection/processor sending as few as possible packets.

The skilled person in the art looking for a solution to the problem of sending the state would find the use of load flags in packets (see D4) in order to inform of the load state. In D1 the header of the packets changes concerning the routing information. It would be an obvious detail that requires no extra inventive activity to a person skilled in the art to change the packets of TCP containing information about the load state etc. from what is disclosed in D1 in order to arrive at an object of the invention according to the claims 10,11 and 22.

Consequently, the invention according to claims 10,11 and 22 lacks an inventive step.